Database on Thermodynamic Properties of Condensed Matter at High Energy Density

P.R. Levashov, V.E. Fortov, K.V. Khishchenko, and I.V. Lomonosov
High Energy Density Research Center
Russian Academy of Sciences
Izhorskaya Str. 13/19
Moscow, 127412, Russia

Shock wave investigations made it possible the knowledge of data on thermodynamic properties of condensed matter under conditions of extremely high energy densities. Measurements of principal, reflected and porous shock Hugoniots as well as determinations of release isentrope parameters cover a broad range of the phase diagram. This unique information embraces nine orders with respect to pressure and five orders with respect to density. All of the data are unique and have their own history and present a results of difficult expensive experiments. Scientific community published a large amount of papers which contain ca. 10000 experimental points. These data for 250 substances (metals and alloys, rocks and minerals, polymers, composite materials, inorganic and organic liquids) have been collected and stored as ASCII files. The special procedure is developed to convert original ASCII files to SQL format. The database containing 300 references and 10000 records is constructed. The system interface allowing on-line access to the database was elaborated and tested. The database is installed on UNIX-platform with the use of SQL and Perl languages. The system interface provides for an access to the server with installed database through WWW-gateway on the Web site:

This work was supported by RFBR under grant No. 97-07-90370.